

Response Under 37 C.F.R. § 1.111

Title: "Methods and Apparatus to Provide a Handheld Pointer-Based User Interface"

U.S. Serial No. 10/697,672

The Status of the Claims

1. (Currently amended) A method to provide a handheld pointer-based user interface comprising:

encoding, at a wireless pointer component, a first human-computer interaction (HCI) signal with a first code to correspond to a first time associated with a first HCI operation;

transmitting via a first communication link the first encoded HCI signal from the wireless point component to a base component that is operatively coupled to a screen of a display;

encoding, at the wireless point component, a second HCI signal with a second code to correspond to a second time associated with the first HCI operation;

transmitting via ~~[[a]]~~ the first communication link ~~the first HCI signal and the second encoded HCI signal from~~ the wireless pointer component to ~~[[a]]~~ the base component ~~that is operatively coupled to a screen of a display~~, wherein the first code and the second code differ to indicate a difference between the first time the second time;

generating position information associated with the wireless pointer component based on one of the first and second HCI signals; and

transmitting via a second communication link the position information from the base component to a processor configured to generate screen information on the screen of the display.

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2. (Previously Presented) A method as defined in claim 1, wherein the first time corresponds to a first position of the wireless pointer component, and wherein the second time corresponds to a second position of the wireless pointer component.

3. (Previously Presented) A method as defined in claim 1, further comprising transmitting a third HCI signal associated with one of writing, drawing, selecting, or scrolling directly on the screen of the display with the wireless pointer component by a user.

4. (Previously Presented) A method as defined in claim 1, wherein the screen of the display is associated with one of a desktop computer, a laptop computer, or a handheld computer.

5. (Previously Presented) A method as defined in claim 1, wherein transmitting via the first communication link the first HCI signal and the second HCI signal from the wireless pointer component to the base component operatively coupled to the screen of the display comprises transmitting the first HCI signal and the second HCI signal from the wireless pointer component to the base component in response to one of pressing a tip of the wireless pointer component on the screen of the display or pressing a button of the wireless pointer component.

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6. (Previously Presented) A method as defined in claim 1, wherein transmitting via the second communication link the position information from the base component to the processor configured to generate screen information on the screen of the display comprises transmitting the position information from the base component to the processor via one or more communication links operating in accordance with one of an 802.11-based communication protocol, a Bluetooth-based communication protocol, or an infrared-based communication protocol.

7. (Previously Presented) A method as defined in claim 1, further comprising converting the position information from a first format to a second format based on configuration information associated with one of the base component or the screen of the display.

8. (Previously Presented) A method as defined in claim 1, further comprising generating one or more coordinates of the wireless pointer component relative to the screen of the display based on the position information.

9. (Previously Presented) A method as defined in claim 1, further comprising operatively coupling the base component on a side of the display to receive the first HCI signal and the second HCI signal.

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10. (Currently amended) A machine readable medium storing instructions, which when executed, cause a machine to:

encode, at a wireless pointer component, a first human-computer interaction (HCI) signal with a first code to correspond to a first time associated with a first HCI operation;
 transmit via a first communication link the first encoded HCI signal from the wireless point component to a base component that is operatively coupled to a screen of a display;

encode, at the wireless pointer component, a second HCI signal with a second code to correspond to a second time associated with the first HCI operation;

 transmit via ~~[[a]]~~ the first communication link the ~~first HCI signal and the second encoded HCI signal from [[a]]~~ the wireless pointer component to ~~[[a]]~~ the base component ~~that is operatively coupled to a screen of a display,~~ wherein the first code and the second code differ to indicate a difference between the first time and the second time;

 generate position information ~~of~~ associated with the wireless pointer component based on one of the first and second HCI signals; and

 transmit via a second communication link the information from the base component to a processor configured to generate screen information on the screen of the display.

11. (Previously Presented) A machine readable medium as defined in claim 10, wherein the first time corresponds to a first position of the wireless pointer component, and wherein the second time corresponds to a second position of the wireless pointer component.

12. (Previously Presented) A machine readable medium as defined in claim 10, wherein the instructions, when executed, cause the machine to transmit via the first

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communication link the first HCI signal and the second HCI signal from the wireless pointer component to the base component operatively coupled to the screen of the display by transmitting a third HCI signal associated with one of writing, drawing, selecting, or scrolling directly on the screen of the display with the wireless pointer component by a user.

13. (Previously Presented) A machine readable medium as defined in claim 10, wherein the instructions, when executed, cause the machine to transmit via the first communication link the first HCI signal and the second HCI signal from the wireless pointer component to the base component operatively coupled to the screen of the display by transmitting the first HCI signal and the second HCI signal from the wireless pointer component to the base component operatively coupled to the screen of the display associated with one of a desktop computer, a laptop computer, or a handheld computer.

14. (Previously Presented) A machine readable medium as defined in claim 10, wherein the instructions, when executed, cause the machine to transmit via the first communication link the first HCI signal and the second HCI signal from the wireless pointer component to the base component operatively coupled to the screen of the display by transmitting the first HCI signal and the second HCI signal from the wireless pointer component to the base component in response to one of pressing a tip of the wireless pointer component on the screen of the display or pressing a button of the wireless pointer component.

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15. (Previously Presented) A machine readable medium as defined in claim 10, wherein the instructions, when executed, cause the machine to convert the position information from a first format to a second format based on configuration information associated with one of the base component or the screen of the display.

16. (Previously Presented) A machine readable medium as defined in claim 10, wherein the instructions, when executed, cause the machine to generate one or more coordinates of the wireless pointer component relative to the screen of the display based on the position information.

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17. (Currently amended) An apparatus to provide a handheld pointer-based user interface comprising:

a wireless pointer component configured to encode ~~transmit via a first communication link~~ a first human-computer interaction (HCI) signal ~~and a second HCI signal, wherein the first HCI signal is to be encoded~~ with a first code to correspond to a first time associated with a first HCI operation and to transmit via a first communication link the first encoded HCI signal, wherein the wireless pointer component is configured to encode a second HCI signal is to be encoded with a second code to correspond to a second time associated with the first HCI operation and to transmit via the first communication link the second encoded HCI signal;

a base component operatively coupled to a screen of a display to receive via the first communication link the first and second encoded HCI signals from the wireless pointer component, the ~~one or more base components~~ component being configured to generate position information associated with the wireless pointer component based on the first and second encoded HCI signals, wherein the first code and the second code differ to indicate a difference between the first time and the second time; and

a processor configured to generate screen information on ~~[[a]] the screen of [[a]] the~~ display, wherein the processor is to receive via a second communication link the position information from the base component.

18. (Previously Presented) An apparatus as defined in claim 17, wherein the first time corresponds to a first position of the wireless pointer component, and wherein the second time corresponds to a second position of the wireless pointer component.

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19. (Previously Presented) An apparatus as defined in claim 17, wherein the wireless pointer component comprises one of a stylus or an electronic pen.

20. (Previously Presented) An apparatus as defined in claim 17, wherein the screen information comprises one or more coordinates calculated based on the position information.

21. (Previously Presented) An apparatus as defined in claim 17, wherein the processor comprises one of a desktop computer, a laptop computer, or a handheld computer.

22. (Previously Presented) An apparatus as defined in claim 17, wherein the display comprises one of a cathode ray tube (CRT) display, a liquid crystal display (LCD), a light-emitting diode (LED) display, or a plasma display.

23. (Previously Presented) An apparatus as defined in claim 17, wherein the second communication link operates in accordance with one of [[a]] an 802.11-based communication protocol, a Bluetooth-based communication protocol, or an infrared-based communication protocol.

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24. (Currently amended) A processor system to provide a handheld pointer-based user interface comprising:

a display having a screen configured to generate one of text or graphics;

a processor operatively coupled to the display to generate screen information on the screen of the display; and

a handheld pointer-based user interface device having a wireless pointer component configured to transmit via a first communication link one or more human-computer interaction (HCI) signals associated with ~~one or more~~ an HCI position events operation, wherein a first one of the HCI signals associated with the HCI operation is encoded differently from a second one of the HCI signals associated with the HCI operation to indicate a difference in time between a first time corresponding to the first one of the HCI signals and a second time corresponding to the second one of the HCI signals, and a base component operatively coupled to the screen of the display to receive via the first communication link the HCI signals from the wireless pointer component and configured to generate position information associated with the wireless pointer component based on the HCI signals, and to transmit via a second communication link the position information from the one or more base components to the processor.

25. (Previously Presented) A processor system as defined in claim 24, wherein the HCI signals correspond to one of writing, drawing, selecting, or scrolling directly on the screen of the display with the wireless pointer component by a user.

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26. (Previously Presented) A processor system as defined in claim 24, wherein the wireless pointer component comprises one of a stylus or an electronic pen.

27. (Previously Presented) A processor system as defined in claim 24, wherein the screen information comprises one or more coordinates calculated based on the position information.

28. (Previously Presented) A processor system as defined in claim 24, wherein the processor comprises one of a desktop computer, a laptop computer, or a handheld computer.

29. (Previously Presented) A processor system as defined in claim 24, wherein the display comprises one of a cathode ray tube (CRT) display, a liquid crystal display (LCD), a light-emitting diode (LED) display, or a plasma display.

30. (Previously Presented) A processor system as defined in claim 24, wherein the second communication link operates in accordance with one of [[a]] an 802.11-based communication protocol, a Bluetooth-based communication protocol, or an infrared-based communication protocol.